DOCUMENT RESUME

ED 311 198 CE 053 124

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TITLE A Longitudinal Study of Earnings of VTAE Graduates. An Analysis of Earnings of 1982-83 Wisconsin Post Secondary Vocational/Technical Education Program Completers Utilizing 1985 State Income Tax and 1988 Wage Reporting Data Compared to Adjusted National Census Data.
INSTITUTION Wisconsin Univ., Madison. Vocational Studies Center.
SPONS AGENCY Wisconsin State Board of Vocational, Technical, and Adult Education, Madison.
PUB DATE 89
NOTE 70p.
PUB TYPE Reports - Research/Technical (143) -- Statistical Data (110)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *College Graduates; *Income; Longitudinal Studies; *Outcomes of Education; Program Effectiveness; *Salary Wage Differentials; Secondary Education; Technical Education; *Two Year Colleges; Vocational Followup; *Vocational Schools
IDENTIFIERS Vocational Technical Adult Education Districts; *Wisconsin

ABSTRACT

A study sought to determine how graduates of vocational, technical, and adult education (VTAE) programs fared in the work force as compared with a national comparison group. The secondary purpose of the study was to ascertain the feasibility and appropriateness of using existing data bases to conduct follow-up research of vocational education graduates. More than 15,000 graduates of vocational education programs in 16 VTAE districts in Wisconsin for the year 1982-83 were categorized based upon information obtained from student records and state income records. A national comparison group based on United States Bureau of the Census records for 1985 was used. Some of the observations drawn from the study were the following: (1) overall, VTAE graduates outperformed economically comparison groupings based on the same gender and age breakdown for persons with a high school diploma; (2) the longer VTAE graduates are in the work force, the more they outperform their peers economically; (3) the longer the term of training, the higher the earnings of the VTAE graduate; (4) female graduates outperformed their peers to a greater degree than did males; (5) graduates of 2-year technical programs and trade and industry programs earned more than graduates from all other program areas; (6) VTAE graduates tended to work full time and to receive unemployment compensation less often than their peers with high school diplomas. (Document includes 77 data tables.) (KC)

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A Longitudinal Study of Earnings of VTAE Graduates

An Analysis of Earnings of 1982-83 Wisconsin Post Secondary Vocational/ Technical Education Program Completers Utilizing 1985 State Income Tax and 1988 Wage Reporting Data Compared to Adjusted National Census Data

by

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1989

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This research was funded by the Wisconsin State Board of Vocational, Technical and Adult Education. Conclusions expressed are those of the researchers and do not necessarily represent the viewpoint of the State Board.

TABLE OF CONTENTS

PAGE

Preface iii

List of Tables v

Executive Summary 1

Chapter

1. Profile of 1982-83 VTAE Graduates 5
2. 1985 Income of 1982-83 VTAE Graduates 11
3. 1985 Earnings of 1982-83 Graduates, Comparison Groups 17
4. 1988 Earnings of 1982-83 Graduates, Comparison Groups 35
5. Mobility of Vocational Education Graduates 53
6. Summary - Observations and Conclusions 55

PREFACE

The economic performance of vocational education graduates historically has been used as a performance indicator of quality vocational education. Data used to generate this economic information have traditionally been gathered by contacting individual graduates within six months of graduation through some sort of follow-up instrument, and directly soliciting from them information on current employment and earnings.

This method as in any research process, presents some fairly significant constraints. One immediate problem is the rate of return from potential respondents. This is especially true in studies of a more longitudinal nature, for the costs associated with locating individuals can be significant. Follow-up studies based on a less than satisfactory rate of return may result in non-respondent bias. Moreover, such self-reporting may contain inaccuracies based upon ego inflation or upon the possibility that such financial information as requested might not be readily available to the respondent or that the respondent may not wish to produce the requested information for whatever reason.

Over the past few years, computerized data bases have increased in numbers and amount of data included. The research reported herein is an attempt to determine the feasibility and appropriateness of utilizing certain data bases already in existence to provide economic performance indicators of graduates of vocational and technical education programs.

In the Spring of 1988, Robert Sorensen, then State Director of the Wisconsin Vocational, Technical and Adult Education System, called attention to a follow-up study done by I.A. Ghazalah, an economics professor at Ohio University using federal income tax data. After investigating this approach it was decided to attempt to do a similar but more comprehensive study using Wisconsin data sources. This study represents what was a pioneering effort since state data sources had not been used for this purpose, up to this time .

The study represents not only valuable data assessing the progress of VTAE graduates in the work force but a model that can be replicated in Wisconsin and perhaps across the nation. The study would not have been possible without the cooperation of a number of state agencies and individuals.

Among the challenges was the matter of how such data could be compiled without violating the confidentiality of agencies and individuals. Means were developed so that agencies were assured that it would not be possible for the researchers or users of the data to identify any individual in the study.

In writing an acknowledgment, it is not possible to name all that have contributed, however, key individuals are named. Norman Kenney, Planning and Analysis Section, Wisconsin Board of Vocational, Technical and Adult Education and his staff are acknowledged for their work in providing an initial computer tape of program completers and for their assistance in developing appropriate categories for data collection and analysis.

Key to the study was the work done by the Wisconsin Department of Revenue. Eleanor Tyrrell, Applications Development Supervisor was our key link with the agency. Once the procedure for assurance of confidentiality was agreed upon, other problems were treated as minor details. Gordon Thompson, Management Information Specialist, Department of Revenue, accomplished the programming and data analysis needed to complete the table shells provided.

Franz Backus, Wage Record Planner, Department of Industry, Labor and Human Relations was key to gaining access to data from the recently instituted state wage reporting system. The system provides continuing possibilities for studies of this kind.

Paul Voss, Senior Scientist, Applied Population Laboratory, University of Wisconsin-Madison shared his expertise throughout the study for which we are grateful. His greatest contribution, however, was in developing the data on comparison groups, a task that could be accomplished only by a person with his experience and expertise. He was ably assisted by Doug Aughey, an assistant in the lab.

Finally, Dan Jarosik is acknowledged for his good work on the study. He has been responsible for much of the coordination, organization of data and writing of the report.

Merle E. Strong

LIST OF TABLES

TABLE		PAGE
1.	Distribution of 1982-83 Graduates by Gender.	6
2.	Distribution of 1982-83 Graduates by Age, (Age in 1985).	6
3.	Distribution of 1982-83 Graduates by Program.	7
4.	Distribution of 1982-83 Graduates by Length of Instruction.	7
5.	Distribution of 1982-83 Graduates by Disadvantagement.	8
6.	Distribution of 1982-83 Graduates by School Region.	8
7.	Mean 1985 Income of Graduates, Distributed by Program, 1982-83 Graduates.	12
8.	Total 1985 Income of Graduates, Distributed by Gender, 1982-83 Graduates, All Programs.	13
9.	Total 1985 Income of Graduates, Distributed by Disadvantagement, 1982-83 Graduates, All Programs.	13
10-A.	Total 1985 Income of Graduates, Distributed by School Region, 1982-83 Graduates, All Programs, Region 1.	14
10-B.	Total 1985 Income of Graduates, Distributed by School Region, 1982-83 Graduates, All Programs, Region 2.	14
10-C.	Total 1985 Income of Graduates, Distributed by School Region, 1982-83 Graduates, All Programs, Region 3.	15
10-D.	Total 1985 Income of Graduates, Distributed by School Region, 1982-83 Graduates, All Programs, Region 4.	15
10-E.	Total 1985 Income of Graduates, Distributed by School Region, 1982-83 Graduates, All Programs, Region 5.	16
11.	Unemployment Compensation Received, 1982-83 Graduates Versus Wisconsin General Population.	16
12.	Wages and Earnings as Percentage of Total Income, Distributed by Program and School Region, 1982-83 Graduates.	17
13-A.	Mean 1985 Income of 1982-83 Graduates, Distributed by Program, All Workers.	18

TABLE		PAGE
13-B.	Adjusted Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program, Compared to Adjusted National Earnings, All Workers.	19
14-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, All Workers, Males.	20
14-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, All Workers, Females.	20
15-A.	Mean 1985 Income of 1982-83 Graduates, Distributed by Program and Length of Instruction, All Workers.	21
15-B.	Adjusted Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, Compared to Adjusted National Earnings, All Workers.	21
16-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement, Compared to Adjusted National Earnings, All Workers, Economic Disadvantagement.	23
16-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement, Compared to Adjusted National Earnings, All Workers, No Economic Disadvantagement.	23
17-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 1.	24
17-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 2.	24
17-C.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 3.	25
17-D.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 4.	25
17-E.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 5.	26
18.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Age (Age in 1985), Compared to Adjusted National Earnings, All Workers.	26

TABLE		PAGE
19-A.	Mean 1985 Income of 1982-83 Graduates, Distributed by Program, Year-Round, Full-Time Workers.	27
19-B.	Adjusted Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	27
20-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Males.	28
20-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Females.	28
21-A.	Mean 1985 Income of 1982-83 Graduates, Distributed by Program and Length of Instruction, Year-Round, Full-Time Workers.	30
21-B.	Adjusted Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	30
22-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Economic Disadvantagement.	31
22-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, No Economic Disadvantagement.	31
23-A.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 1.	32
23-B.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 2.	32
23-C.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 3.	33
23-D.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 4.	33

TABLE		PAGE
23-E.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 5.	34
24.	Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Age (Age in 1985), Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	34
25-A.	1988 First Quarter Earnings of 1982-83 Graduates, Distributed by Program, All Workers.	36
25-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program, Compared to Adjusted National Earnings, All Workers.	36
26-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, All Workers, Male.	38
26-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, All Workers, Female.	38
27-A.	1988 First Quarter Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, All Workers.	39
27-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, Compared to Adjusted National Earnings, All Workers.	39
28-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Economic Disadvantagement, Compared to Adjusted National Earnings, All Workers, Economic Disadvantagement.	40
28-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Economic Disadvantagement, Compared to Adjusted National Earnings, All Workers, No Economic Disadvantagement.	40
29-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers. Region 1.	41
29-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 2.	41
29-C.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 3.	42

TABLE		PAGE
29-D.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 4.	42
29-E.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, All Workers, Region 5.	43
30.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Age (Age in 1985), Compared to Adjusted National Earnings, All Workers.	43
31-A.	1988 First Quarter Earnings of 1982-83 Graduates, Distributed by Program, Year-Round, Full-Time Workers.	44
31-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	44
32-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed By Program and Gender, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Male.	45
32-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Gender, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Females.	45
33-A.	1988 First Quarter Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, Year-Round, Full-Time Workers.	46
33-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Length of Instruction, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	46
34-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Economic Disadvantagement, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Economic Disadvantagement.	48
34-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Economic Disadvantagement, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, No Economic Disadvantagement.	48
35-A.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 1.	49

TABLE		PAGE
35-B.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 2.	49
35-C.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 3.	50
35-D.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 4.	50
35-E.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Region, Compared to Adjusted National Earnings, Year-Round, Full-Time Workers, Region 5.	51
36.	Projected Mean 1988 Earnings of 1982-83 Graduates, Distributed by Program and Age (Age in 1985), Compared to Adjusted National Earnings, Year-Round, Full-Time Workers.	51
37.	1985 Net Retention Rates of 1982-83 Graduates, Distributed by Program and Region.	53
38-A.	Summary of Ratios of Earnings of 1982-83 Graduates in 1985 and Projected in 1988 to Adjusted National Earnings, All Workers and Year-Round, Full-Time Workers, by Program, Gender, Length of Instruction, Economic Disadvantagement, Region and Age.	57
38-B.	Summary of Ratios of Earnings of 1982-83 Graduates in 1985 and Projected in 1988 to Adjusted National Earnings, All Workers, and Year-Round, Full-Time Workers, by Program, Gender, Length of Instruction, Economic Disadvantagement, Region and Age, continued.	57
39-A.	Summary of Dollar Differences of Earnings of 1982-83 Graduates in 1985 and Projected in 1988 to Adjusted National Earnings, All Workers and Year-Round, Full-Time Workers, by Program, Gender, Length of Instruction, Economic Disadvantagement, Region and Age.	58
39-B.	Summary of Dollar Differences of Earnings of 1982-83 Graduates in 1985 and Projected in 1988 to Adjusted National Earnings, All Workers, and Year-Round, Full-Time Workers, by Program, Gender, Length of Instruction, Economic Disadvantagement, Region and Age, continued.	58

EXECUTIVE SUMMARY

Background

Rather than relying on self-reporting techniques to obtain follow-up information on vocational education graduates, researchers at the Vocational Studies Center, University of Wisconsin-Madison, attempted to determine the feasibility and appropriateness of utilizing certain data bases already in existence, mainly State Income Tax information and the State Wage Reporting system, to provide economic performance indicators of graduates of vocational and technical education programs in Wisconsin

Process

Graduates of the Wisconsin Vocational, Technical and Adult Education (VTAE) for the school year 1982-83 were selected to be included in the study. A total of 15,959 graduates were identified as meeting the study's definition of vocational education graduates. In addition to obtaining each graduates' social security number, other information obtained on each graduate consisted of gender, age, program instructional area, length of instruction, district in which instruction was obtained and whether or not the student received any form of student financial aid while attending school.

These student records were then matched against income records filed with the Wisconsin Department of Revenue (DOR) for the tax year 1985. A total of 12,982 matches were obtained or 81.3% of the 1982-83 VTAE graduates filed Wisconsin state income tax returns in the calendar year 1985. In addition to 1985 income for these graduates, unemployment compensation received and residence (by zip code) in 1985 were also obtained.

These data were analyzed against the various background information previously supplied on the 1982-83 VTAE graduates.

In order to develop a comparison group against which these 1982-83 VTAE graduates could be compared, researchers at the Applied Population Laboratory, University of Wisconsin-Madison, utilizing the U.S. Bureau of the Census data for 1985, formulated such a comparison group. The data on the comparison was adjusted to conform to the age and gender distribution of the 1982-83 graduates as well as adjusting for Wisconsin's ratio to national earnings. Finally, the U.S. Bureau of the Census differentiates in its data between all workers including those working part-time, and year-round, full-time workers. For purposes of this study, those 1982-83 VTAE graduates earning more than minimum wage or $7,000 in 1985 were deemed year-round, full-time workers while the other graduates were included in the analysis for all workers. Comparisons were generated between graduates and the comparison group by program area, gender, length of instruction, economic disadvantagement (receipt of student financial aid), geographic region of the state, and by age for all workers.

It came to the attention of the researchers during the course of the study of a relatively new data base within Wisconsin that also held great promise for assisting the follow-up of vocational education graduates. The Wage Reporting System administered by the Department of Industry, Labor and Human Relations (DILHR) requires of almost all Wisconsin employers to report on a quarterly basis, wages paid to their employees. The tape of the 15,959, 1982-83 graduates was run against the first quarter, 1988 Wage Reporting system tape. A total of 11,220 (over 70% of the 1982-83 graduates) were found. Earnings information in the first quarter of 1988 were then analyzed in a manner similar to that for the 1985 income tax analysis. Two additional steps were required. Since Census data for 1988 was not yet available, the comparison group standard for 1988 was interpolated from the 1985 comparison group by an upward adjustment of 7% (cost of living inflator). Secondly, since earnings information was available only for the first quarter of 1988, these earnings were multiplied by a factor of four to determine an estimated 1988 annual earnings. The same analyses performed with the 1985 income tax data were then performed.

Observations and Conclusions

A number of conclusions and observations are presented after reviewing the data and information contained in the report.

- Overall, VTAE graduates out performed economically comparison groupings based on the same gender and age breakdown for persons with a high school diploma.
- The longer the VTAE graduate is in the workforce, the more that graduate out performs economically his or her peers.
- The longer the term of training, the higher the earnings of the VTAE graduate. The only clear exception to this rule was persons completing short term trade and industry programs who in many instances out performed some two year program completers.
- For the most part, female graduates out performed their peers to a greater degree than did males, although actual dollar amount differences were greater for males in 1988.
- Graduates of technical programs (two years in length only) and trade and industry programs earned more than graduates from all other program areas.
- There was no discernable difference in earnings between graduates who received student financial aid while attending school versus those who did not. In other words, economic disadvantagement while attending school had little effect on earnings in the work place.
- For the vast majority of cases, the younger the VTAE graduate, the more likely it was that the graduate would out perform economically his or her counterpart in the comparison groups.

- While there were some differences in earning levels of completers geographically, earnings ratios of graduates to control groups in each region were very similar, thus displaying a uniform economic impact across the state.

- Compared to national statistics for 1985, 1982-83 VTAE graduates tend to work in year-round, full-time jobs to a greater degreee than their peers with high school diplomas.

- VTAE graduates received unemployment compensation less often and to a lesser extent than the general population in the State of Wisconsin. In the first quarter of 1988, no 1982-83 VTAE graduate received any form of unemployment compensation.

CHAPTER I

PROFILE OF 1982-83 VTAE GRADUATES

The State of Wisconsin consists of sixteen Vocational, Technical and Adult Education (VTAE) Districts providing a myriad of educational experiences to its citizens. Among these services are vocational education programs that run the gamut of what are traditionally offered across the country. These range from short-term types of experiences, such as six-week training programs, to more lengthy and often more sophisticated associate degree programs. Programs can also be allocated among the traditional classifications such as health occupations, trade and industry, business education, and the like.

For purposes of this research, graduates of the VTAE System in the school year 1982-83 were selected for study. Computerized information for these graduates was obtained from the Wisconsin Board of Vocational, Technical and Adult Education. Data for each graduate consisted of:

Social Security Number
Gender
Age
Program Area
District of Instruction
Length of Instruction
Possession of Economic Disadvantagement

A total of 15,959 graduates were identified that met the study's definition of vocational education graduates. This data base was then analyzed against the data base of the Wisconsin Department of Revenue (DOR) for possible matches with all persons filing 1985 Wisconsin State income tax returns. A total of 12,982 matches, or 81.3% of 1982-83 VTAE graduates filing 1985 income tax returns, were found.

Based upon the analysis by DOR, a profile of 1982-83 VTAE graduates filing 1985 tax returns is summarized in the following six tables.

Table 1 indicates that the gender of graduates is somewhat equally divided, with females identified in 1985 making up 52.7% of the population. Agewise, the population is distributed across all ages, but the majority of the graduates, 70.1%, are under the age of thirty (Table 2).

Table 1

Distribution of Graduates by Gender, 1982-83 Graduates (Age in 1985)

Sex	Frequency	Percent
Male	6134	47.3
Female	6848	52.7
TOTAL	**12,982**	**100**

Table 2

Distribution of Graduates by Age, 1982-83 Graduates (Age in 1985)

Age	Frequency	Percent
Under 20	31	0.2
20 - 24	6396	49.3
25-29	2679	20.6
30-34	1464	11.3
35-44	1359	l0.5
45-54	467	3.6
55-64	115	0.90
Over 65	14	0.1
Unknown	457	3.5

Distribution of graduates by program area are shown in Table 3. The most populous programs are Office Education, Health Occupations, and Trade and Industry - each just under 30%.

Table 3
Distribution of Graduates by Program
1982-83 Graduates

Program	Frequency	Percent
Agribusiness	509	3.9
Office Education	3462	26.7
Home Economics	727	5.6
Health Occupations	3474	26.8
Technical	1006	7.7
Trade & Industries	3804	29.3

Table 4 presents the distribution of graduates 1985 by the length of the instructional program. About 15% completed programs of less than one year. Approximately 34.1% graduated from a program one year in length, while the balance, or 47%, graduated from a two year program.

Table 4
Distribution of Graduates by Length of Instruction
1982-83 Graduates

Length	Frequency	Percent
Under 1 Year	**1968**	**15.2**
1 Year Program	**4422**	**34.1**
2 Year Program	**6098**	**47.0**
Unknown	**494**	**3.8**

Whether or not a graduate is classified as economically disadvantaged is determined by that student's receipt of any student financial aid while attending a VTAE institution. Table 5 shows that 21.4% of the 1982-83 graduates received some form of financial assistance while attending the VTAE school.

Table 5
Distribution of Graduates by Disadvantagement
1982-83 Graduates

Disadvantagement	Frequency	Percent
yes	2780	21.4
no	10202	78.6

Table 6 presents a breakdown of graduates by geographical region. For purposes of this study, the sixteen VTAE districts referred to earlier were compressed into five regions for the state of Wisconsin. Those five regions are portrayed in Chart I.

Table 6
Distribution of Graduates by School Region
1982-83 Graduates.

Region	Frequency	Percent
Region 1	1570	12.1
Region 2	2631	20.3
Region 3	3767	29.0
Region 4	2843	21.9
Region 5	2171	16.7

Some further explanation is needed for Tables 5 & 6. Whether or not a graduate is classified as economically disadvantaged is determined by that student's use of any student financial aid while attending a VTAE institution. Therefore, Table 5 shows that 21.4% of the 1982-83 graduates received some form of financial assistance while attending the VTAE school.

Table 6 presents a breakdown of graduates by geographical region. For purposes of this study, the sixteen VTAE districts referred to earlier were compressed into five regions for the State of Wisconsin, and those five regions are portrayed in Chart 1.

CHART 1

State of Wisconsin

CHAPTER II

1985 INCOME OF 1982-83 VTAE GRADUATES

The next step in the research design was to determine the income levels for 1982-83 VTAE graduates for the calendar year 1985. Information available to the Department of Revenue (DOR) that was afforded to the researchers consisted of the following:

1985 Mean Income
1985 Unemployment Compensation Received
1985 Residence (By Zip Code)
1985 Marital Status
1985 Number of Dependents
1985 Wisconsin Income Taxes Paid

Based upon this information and the variables supplied to the researchers by the Wisconsin Board of Vocational, Technical and Adult Education, numerous tables were prepared so that a profile could be produced on the 1982-83 VTAE graduates as they performed in calendar year 1985.

A note about confidentiality is appropriate at this point. The researchers presented to the DOR blank table shells indicating the kinds of analyses the researchers wished performed. The DOR provided the analysis by entering the appropriate information in these shells. The DOR would not, however, complete any individual cell in any table in which there were fewer than ten graduates. In this manner, then, it would be impossible to identify any given individual. Where a cell would justify a number of less than ten, that cell was combined with the next cell. At no time during the course of the research, could the researchers identify individuals either by name or social security number.

1985 Income data were processed for the 12,982 1982-83 VTAE graduates who filed Wisconsin income tax returns for 1985. Table 7 displays the 1985 mean income of the 1982-83 graduates by program area, the range running from $7,817 for the Home Economics area to $17,071 for Technical programs.

A distribution by gender of incomes of 1982-83 graduates in 1985 is displayed in Table 8. Ranges from under $7,000 to over $27,000 were selected to portray the income data. From this distribution, it is shown that males generate more income than their female peers and that the discrepancy increased as the income rates rose. Almost 10% of the 1982-83 male graduates had incomes averaging almost $35,000.

Table 7

Mean 1985 Income of Graduates, Distributed by Program, 1982-83 Graduates

	Amount		
Program	**N**	**PCTN**	**Mean**
Agribusiness	509.00	3.92	7993.51
Office Education	3462.00	26.67	11540.08
Home Economics	727.00	5.60	7817.06
Health Occupations	3474.00	26.76	10261.77
Technical	1006.00	7.75	17070.93
Trade & Industrial	3804.00	29.30	14474.04

Table 9 presents similar information to Table 8, differing only by whether or not the graduate received some form of student financial assistance while attending a VTAE school. This distribution reveals little difference in 1985 incomes across the two population groups.

Tables 10-A through 10-E present this same range of 1985 incomes for 1982-83 graduates by region. Of particular interest are the rates of graduates earning under $7,000. There is a definite decrease in this population as one goes from Region 1 through to Region 5, or from the northwest part of the State to the more urbanized southeastern portion, where the percentage of graduates earnings less than $7,000 is a third lower.

It has been previously mentioned that unemployment compensation received in 1985 by 1982-83 VTAE graduates was also gathered from 1985 income tax forms. This information was then compared with the amounts received in 1985 by the general population in the state of Wisconsin (Source: Wisconsin Department of Industry, Labor and Human Relations). Table 11 presents the comparison from both of these groups. One should note that it appears VTAE graduates, on the average, receive unemployment compensation at approximately one-half the rate of the general population in Wisconsin.

Table 8

Total 1985 Income of Graduates, Distributed by Gender, 1982-83 Graduates, All Programs

	GENDER					
	MALE			FEMALE		
	AMOUNT			AMOUNT		
INCOME	N	PCTN	MEAN	N	PCTN	MEAN
0 - 7000	1424.00	23.21	2956.26	2098.00	30.64	3391.33
7000 - 8999	478.00	7.79	8044.61	893.00	13.04	8071.14
9000 - 10999	522.00	8.51	10008.78	1034.00	15.10	10016.24
11000 - 12999	502.00	8.18	12023.06	843.00	12.31	11932.71
13000 - 14999	535.00	8.72	13996.19	700.00	10.22	13952.31
15000 - 16999	559.00	9.11	15995.29	457.00	6.67	15930.44
17000 - 18999	470.00	7.66	17984.48	275.00	4.02	17969.59
19000 - 20999	393.00	6.41	19978.45	215.00	3.14	19857.09
21000 - 22999	269.00	4.39	22032.09	150.00	2.19	21928.47
23000 - 24999	215.00	3.51	23971.09	72.00	1.05	23884.54
25000 - 26999	194.00	3.16	25873.92	41.00	0.60	25746.05
OVER - 27000	573.00	9.34	34927.15	70.00	1.02	33751.17

Table 9

Total 1985 Income of Graduates, Distributed by Disadvantagement, 1982-83 Graduates, All Programs

	DISADVANTAGEMENT					
	ECONOMIC			NONE		
	AMOUNT			AMOUNT		
INCOME	N	PCTN	MEAN	N	PCTN	MEAN
0 - 7000	748.00	26.91	3315.76	2774.00	27.19	3188.37
7000 - 8999	276.00	9.93	8045.25	1095.00	10.73	8066.08
9000 - 10999	335.00	12.05	10028.10	1221.00	11.97	10009.80
11000 - 12999	278.00	10.00	11975.61	1067.00	10.46	11964.04
13000 - 14999	264.00	9.50	13981.95	971.00	9.52	13968.43
15000 - 16999	238.00	8.56	16001.85	778.00	7.63	15955.19
17000 - 18999	171.00	6.15	17965.75	574.00	5.63	17982.93
19000 - 20999	145.00	5.22	19941.83	463.00	4.54	19933.56
21000 - 22999	85.00	3.06	22038.58	334.00	3.27	21983.90
23000 - 24999	52.00	1.87	23925.69	235.00	2.30	23954.62
25000 - 26999	45.00	1.62	25699.71	190.00	1.86	25887.58
OVER - 27000	143.00	5.14	35632.74	500.00	4.90	34560.75

TABLE 10 - A

TOTAL 1985 INCOME OF GRADUATES DISTRIBUTED
BY SCHOOL REGION
1982-1983 GRADS
ALL PROGRAMS

	REGION 1		
	AMOUNT		
INCOME	N	PCTN	MEAN
0 - 7000	531	33.82	3078.06
7000 - 8999	184	11.72	8062.94
9000 - 10999	215	13.69	9996.05
11000 - 12999	147	9.36	11928.81
13000 - 14999	146	9.30	13919.43
15000 - 16999	122	7.77	16039.70
17000 - 18999	70	4.46	17990.66
19000 - 20999	51	3.25	20010.88
21000 - 22999	42	2.68	21960.10
23000 - 24999	23	1.46	23917.30
25000 - 26999	19	1.21	26005.79
OVER - 27000	20	1.27	31261.20

TABLE 10 - B

TOTAL 1985 INCOME OF GRADUATES DISTRIBUTED
BY SCHOOL REGION
1982-1983 GRADS
ALL PROGRAMS

	REGION 2		
	AMOUNT		
INCOME	N	PCTN	MEAN
0 - 7000	792	30.10	3361.73
7000 - 8999	351	13.34	8068.12
9000 - 10999	368	13.99	10028.60
11000 - 12999	341	12.96	11914.29
13000 - 14999	233	8.86	13996.73
15000 - 16999	158	6.01	15900.43
17000 - 18999	130	4.94	17994.79
19000 - 20999	84	3.19	19957.11
21000 - 22999	66	2.51	21846.68
23000 - 24999	41	1.56	24017.71
25000 - 26999	23	0.87	25887.57
OVER - 27000	44	1.67	37919.52

TABLE 10 - C

TOTAL 1985 INCOME OF GRADUATES DISTRIBUTED
BY SCHOOL REGION
1982-1983 GRADS
ALL PROGRAMS

	REGION 3		
	AMOUNT		
INCOME	N	PCTN	MEAN
0 - 7000	1006	26.71	3292.76
7000 - 8999	399	10.59	8062.53
9000 - 10999	450	11.95	9989.28
11000 - 12999	382	10.14	11967.30
13000 - 14999	344	9.13	13928.78
15000 - 16999	297	7.88	16039.12
17000 - 18999	225	5.97	17972.54
19000 - 20999	188	4.99	19958.87
21000 - 22999	111	2.95	21985.21
23000 - 24999	83	2.20	23881.94
25000 - 26999	67	1.78	25856.94
OVER - 27000	215	5.71	35504.02

TABLE 10 - D

TOTAL 1985 INCOME OF GRADUATES DISTRIBUTED
BY SCHOOL REGION
1982-1983 GRADS
ALL PROGRAMS

	REGION 4		
	AMOUNT		
INCOME	N	PCTN	MEAN
0 - 7000	711	25.01	3104.59
7000 - 8999	275	9.67	8028.89
9000 - 10999	346	12.17	10054.40
11000 - 12999	289	10.17	12005.47
13000 - 14999	289	10.17	14022.79
15000 - 16999	223	7.84	15917.60
17000 - 18999	171	6.01	17950.12
19000 - 20999	162	5.70	19879.38
21000 - 22999	94	3.31	21944.91
23000 - 24999	61	2.15	23873.00
25000 - 26999	62	2.18	25822.23
OVER - 27000	160	5.63	35517.00

TABLE 10 - E

TOTAL 1985 INCOME OF GRADUATES DISTRIBUTED BY SCHOOL REGION
1982-1983 GRADS
ALL PROGRAMS

	REGION 5		
	AMOUNT		
INCOME	N	PCTN	MEAN
0 - 7000	482	22.20	3128.45
7000 - 8999	162	7.46	8101.60
9000 - 10999	177	8.15	9987.03
11000 - 12999	186	8.57	12029.32
13000 - 14999	223	10.27	13977.68
15000 - 16999	216	9.95	15922.32
17000 - 18999	149	6.86	18002.57
19000 - 20999	123	5.67	19927.85
21000 - 22999	106	4.88	22155.82
23000 - 24999	79	3.64	24053.08
25000 - 26999	64	2.95	25815.80
OVER - 27000	204	9.40	33167.02

TABLE 11

Unemployment Compensation Received
1982-83 Graduates Versus Wisconsin General Population

	1982-83 Graduates		Wisconsin General Population	
Amount	Frequency	%	%	Frequency
Less than $100	12,161	93.7	86.4	1,740,607
100 - 250	131	1.0	1.8	37,058
251 - 500	139	1.1	1.7	33,380
501 - 750	99	0.8	1.3	25,297
751 - 1,000	94	0.7	1.2	24,157
1,001 - 1,250	49	0.4	0.9	18,921
1,251 - 1,500	66	0.5	0.8	16,677
1,501 - 1,750	42	0.3	0.7	14,735
1,751 - 2,000	37	0.3	0.7	14,723
Over $2,000	164	1.3	4.4	88,333
TOTALS	12,982	100%	100%	2,014,368

CHAPTER III

1985 EARNINGS OF 1982-83 GRADUATES COMPARISON GROUPS

With the able assistance of researchers at the Applied Population Laboratory at the University of Wisconsin-Madison, the researchers developed a comparison group of individuals to relate to 1982-83 VTAE graduates' 1985 income. Utilizing the U.S. Bureau of the Census data for 1985, entitled *Money Income of Households, Families, and Persons in The United States: 1985*, as a starting point, these data were adjusted to conform to the age and gender distribution of the 1982-83 VTAE graduate population.

Secondly, these data were further adjusted for Wisconsin using the 1985 ratio of Wisconsin per capita. The adjustment factor for 1985 was 0.953783 or in another way Wisconsin workers, on average, earned a little over 95% of the national average. Where comparisons were made for the five geographical regions included in the study, per capita income for the five regions was derived by computing a weighted average of individual county per capita incomes published in *Current Population Reports*, Series P-26, No. 86-ENC-SC, U.S. Bureau of the Census.

Finally, since the mean 1985 income figures reported by the DOR for 1982-83 VTAE graduates were in fact total income, they needed to be deflated to more accurately reflect earnings as opposed to other types of income such as interest. To this end, the DOR produced an analysis of wages and earnings as a percentage of total income for the 1982-83 VTAE graduates which is shown in Table 12. This yielded a statewide ratio of 97.32% of earnings to income. This ratio is consistent with the ratio of approximately 97% derived from the national ratio of total income to earnings for year-round full-time workers, found in *Current Populaton Reports*, Series P-60, No. 156, U.S. Bureau of the Census. Hence, a deflator of 0.97 was used to convert total 1985 income figures to earnings.

TABLE 12

Wages and Earnings as Percentage of Total Income, Distributed by Program and School Region, 1982-83 Graduates

Program	Region 1	Region 2	Region 3	Region 4	Region 5	Total
Agribusiness	97.25%	94.91%	95.02%	93.02%	96.39%	94.74%
Office Education	97.91%	97.57%	96.95%	97.20%	97.31%	97.31%
Home Economics	96.41%	98.74%	97.32%	96.51%	94.68%	96.83%
Health Occupations	97.02%	97.76%	96.13%	97.66%	97.01%	97.04%
Technical	98.17%	98.44%	97.97%	97.61%	96.37%	97.63%
Trade & Industrial	97.97%	97.54%	97.60%	98.01%	97.38%	97.64%
Total	97.75%	97.66%	97.06%	97.42%	97.06%	97.32%

Another variable that needed to be dealt with in this statistical application was the issue of previous educational attainment. Documentation of previous educational attainment of the 1982-83 VTAE graduates was not available. Various professionals within the VTAE system estimate that about 15% of VTAE enrollees do not possess a high school diploma. In fact, in the year 1987-88 for which the Wisconsin Board of Vocational, Technical and Adult Education has self-reported previous educational attainment of VTAE enrollees, 15.5% of those enrolled in similar programs to those under investigation in this research reported less than a twelfth grade education. This is of import because Census Bureau information shows that persons with less that a high school education earn from 25 to 40% less than a high school graduate. Since the researchers did not have factual figures on the percent of Wisconsin graduates who completed less than four years of high school, the comparison group presented in this study are persons with completed education equal to four years of high school. It is obvious that not all VTAE graduates finished twelve years of school.

Lastly, the U.S. Bureau of the Census data on earnings for 1985 differentiates between all workers (including part-time workers) and year-round, full-time workers. For example, the Census Bureau lists 66,439,000 total male workers of which 44,907,000 workers are classified year-round, full-time workers. For females, there are 27,872,000 year-round, full-time workers out of 54,212,000 total female workers. For purposes of this study, persons identified with annual 1985 incomes over $7,000, the minimum wage for 1985 in Wisconsin, were categorized for comparison purposes as year-round, full-time workers while all 1982-83 VTAE graduates were compared to all workers. Of the 12,982 1982-83 VTAE graduates who filed 1985 income tax forms, 9,460 who made over $7,000 in 1985 are classified as year-round, full-time workers or approximately 73%. Tables 13-A through 24 present the

TABLE 13-A

MEAN 1985 INCOME OF 1982-83 GRADUATES
DISTRIBUTED BY PROGRAM
ALL WORKERS

Program	N	%	Mean Income
Agribusiness	509	3.92	7,993.51
Office Education	3,462	26.67	11,540.08
Home Economics	727	5.60	7,817.06
Health Occupations	3,474	26.76	10,261.77
Technical	1,006	7.75	17,070.93
Trade & Industrial	3,804	29.30	14,474.04
TOTALS	**12,982**	**100%**	**12,138.77**

TABLE 13-B

ADJUSTED MEAN 1985 EARNINGS OF 1982-83 GRADUATES DISTRIBUTED BY PROGRAM COMPARED TO ADJUSTED NATIONAL EARNINGS ALL WORKERS

Program	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates To National
Agribusiness	**7,753.70**	**10,776.52**	**0.720**
Office Education	**11,193.88**	**10,776.52**	**1.039**
Home Economics	**7,582.55**	**10,776.52**	**0.704**
Health Occupations	**9,953.92**	**10,776.52**	**0.924**
Technical	**16,558.86**	**10,776.52**	**1.537**
Trade & Industrial	**14,039.82**	**10,776.52**	**1.303**
TOTALS	**11,774.60**	**10,776.52**	**1.093**

comparisons of the 1982-83 VTAE graduates' 1985 income to an equivalent group by program, gender, length of instruction, possession of economic disadvantagement, region and age, both for all workers and for year-round, full-time workers.

The mean 1985 income of the 12,982 1982-83 graduates filing tax returns in Wisconsin distributed by program areas are displayed in Table 13-A. In Table 13-B, adjusted incomes as previously described, are compared to a national adjusted earnings rate for workers with completed education equal to 4 years of high school. Overall, the graduates had a 9% higher income than what might be expected with graduates in the Technical and Trade and Industry areas exceeding the incomes of their control groups by 54% and 30% respectively.

Tables 14-A and 14-B distributes the same income data by gender. Although earnings for males ($13,941) are significantly higher than those for females ($9,834) when compared to the national adjusted earnings for both sexes, female graduates actually earn relatively more (15%) than all similarly employed female workers while male graduates exceed the male norm by only 2%.

As one might readily expect, the data indicate that the longer the program the graduate completed, the higher the earnings levels. Tables 15-A and 15-B indicate the earnings ratios to be 0.76% for graduates of less that one year programs, 0.93% for one year programs and

TABLE 14 - A

MEAN 1985 INCOME OF 1982-83 GRADUATES DISTRIBUTED BY PROGRAM
AND GENDER COMPARED TO ADJUSTED NATIONAL EARNINGS
ALL WORKERS

MALES

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	385	6.28	7,783.48	7,549.98	13,706.01	0.551
Office Education	997	16.25	14,009.55	13,589.26	13,706.01	0.991
Home Economics	189	3.08	9,761.21	9,468.37	13,706.01	0.691
Health Occupations	312	5.09	10,931.99	10,604.03	13,706.01	0.774
Technical	905	14.75	17,276.47	16,758.18	13,706.01	1.223
Trade & Industrial	3,346	54.55	15,034.96	14,583.91	13,706.01	1.064
TOTALS	6,134	100%	14,372.68	13,941.50	13,706.01	1.017

TABLE 14-B

MEAN 1985 INCOME OF 1982-83 GRADUATES DISTRIBUTED BY PROGRAM
AND GENDER COMPARED TO ADJUSTED NATIONAL EARNINGS
ALL WORKERS

FEMALES

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	124	1.81	8,645.60	8,386.23	8,547.51	0.981
Office Education	2,465	36.00	10,541.27	10,225.03	8,547.51	1.196
Home Economics	538	7.86	7,134.08	6,920.06	8,547.51	0.810
Health Occupations	3,162	46.17	10,195.64	9,889.77	8,547.51	1.157
Technical	101	1.47	15,229.23	14,772.35	8,547.51	1.728
Trade & Industrial	458	6.69	10,376.16	10,064.88	8,547.51	1.178
TOTALS	6,848	100%	10,137.77	9,833.64	8,547.51	1.150

Table 15 - A

Mean 1985 Income of 82-83 Graduates Distributed by Program and Length of Instruction
All Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	N	%	Mean Income	N	%	Mean Income	N	%	Mean Income
Agribusiness	158	8,03	5,061.22	109	2.46	7,588.01	225	3.69	10,440.08
Office Education	16	0.81	9,482.00	818	18.50	8,619.33	2,603	42.69	12,520.52
Home Economics	71	3.61	7,606.89	403	9.11	6,818.54	229	3.76	9,296.37
Health Occupations	1,386	70.43	7,296.96	1,146	25.92	9,808.14	883	14.48	15,604.58
Technical	---	---	---	---	---	---	1,006	16.50	17,070.93
Trade & Industrial	337	17.12	14,942.70	1,946	44.01	12,267.33	1,152	18.89	14,132.61
TOTALS	1,968	100%	8,455.67	4,422	100%	10,343.27	6,098	100%	13,824.49

Table 15 - B

Adjusted Mean 1985 Earnings of 1982-83 Graduates
Distributed by Program and Length of Instruction
Compared to Adjusted National Earnings
All Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	4,909.38	10,776.52	0.456	7,360.37	10,776.52	0.683	10,126.88	10,776.52	0.940
Office Education	9,197.54	10,776.52	0.853	8,360.75	10,776.52	0.776	12,114.90	10,776.52	1.124
Home Economics	7,378.68	10,776.52	0.685	6,613.98	10,776.52	0.614	9,017.48	10,776.52	0.837
Health Occupations	7,078.05	10,776.52	0.657	9,513.90	10,776.52	0.883	15,136.44	10,776.52	1.405
Technical	---	---	---	---	---	---	16,558.80	---	1.537
Trade & Industrial	14,059.69	10,776.52	1.305	11,899.21	10,776.52	1.105	13,708.63	10,776.52	1.272
TOTALS	8,202.00	10,776.52	0.761	10,032.97	10,776.52	0.931	13,409.76	10,776.52	1.244

1.24% for two year program graduates. It is somewhat difficult to portray graduates from programs of less that one year, that is to say their previous work experience or their employment standing while attending school. For example, the 337 graduates of less that one year trade and industry programs averaged over $14,000 income which is greater than the graduates of two year trade and industry programs.

Tables 16-A and 16-B display graphically the insignificant differences in income levels between those graduates receiving financial aid while attending school and those who didn't. The ratio for graduates who received financial aid while attending school, 1.11, versus those who did not receive financial, 1.09, is indeed a small variation.

Little variation in total income is seen among graduates by region when compared to adjusted national earnings. Table 17-A through 17-E display this information. Total graduate income by region fall within the ratio range of 1.094 and 1.159.

Age has a tremendous impact on the income of VTAE graduates compared to adjusted national earnings adjusted for Wisconsin. Because national data generally portray higher earnings for workers the older they become, younger graduates of the VTAE system perform economically much better than their same age peers. Almost half of the graduates identified in this study were under the age of 30 when they filed tax reports in 1985 and their earnings ratio to the adjusted national earnings was 1.45 as displayed in Table 18.

The research next addressed those 1982-83 VTAE graduates considered working year-round, full-time in 1985. As has been previously detailed in the report, the U.S. Bureau of the Census, in presenting its earnings data for persons in the U.S., differentiates between all workers and year-round, full-time workers. Again, as has been previously described, for purposes of this study, graduates earning over $7,000 in 1985 (minimum wage) are now compared to year-round, full-time workers with completed education equal to four years of high school from the Census data. A total of 9,460 1982-83 VTAE graduates fit within this definition.

Table 19-A presents the 1985 mean income by program area of the these 9,460 graduates considered working year-round, full-time, across program areas. The range of mean incomes runs from $11,460 for home economics programs to $19,452 for the technical areas. Table 19-B show these incomes, adjusted to earnings for 1985, and compares them to national adjusted earnings for year-round, full-time workers in 1985. The ratio drops to 1.015 for year-round, full-time workers versus 1.093 for all workers while graduates in the Technical and Trade and Industry areas again earn relatively more, 28% and 16% respectively, than the national earnings adjusted for Wisconsin.

Tables 20-A and 20-B display 1985 income information for year-round, full-time workers by gender. As was the case for all workers, male earnings are significantly higher than those for females while at the same time, when compared to the national adjusted earnings, by sex, female graduates show a relatively higher income over total females than male graduates over total males, 1.03 to 1.01 respectively.

Table 16 - A

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement Compared to Adjusted National Earnings
All Workers, Economic Disadvantagement

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	64	2.30	10,206.17	9,899.98	10,776.52	0.919
Office Education	774	27.84	11,111.52	10,778.17	10,776.52	1.000
Home Economics	173	6.22	8,232.38	7,985.41	10,776.52	0.741
Health Occupations	653	23.49	10,709.13	10,387.86	10,776.52	0.964
Technical	235	8.45	16,024.89	15,544.14	10,776.52	1.442
Trade & Industrial	881	31.69	14,512.42	14,077.05	10,776.52	1.306
TOTALS	2,780	100%	12,310.10	11,940.79	10,776.52	1.108

Table 16 - B

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement Compared to Adjusted National Earnings
All Workers, No Economic Disadvantagement

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	445	4.36	7,675.28	7,445.02	10,776.52	0.691
Office Education	2,688	26.35	11,663.48	11,313.58	10,776.52	1.050
Home Economics	554	5.43	7,687.37	7,456.75	10,776.52	0.692
Health Occupations	2,821	27.65	10,158.22	9,853.47	10,776.52	0.914
Technical	771	7.56	17,389.76	16,868.07	10,776.52	1.565
Trade & Industrial	2,923	28.65	14,462.47	14,028.00	10,776.52	1.302
TOTALS	10,202	100%	12,092.08	11,729.32	10,776.52	1.088

Table 17 - A

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings
All Workers, *Region 1*

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	25	1.80	10,650.12	10,330.62	8,892.70	1.162
Office Education	479	34.53	9,399.68	9,117.69	8,892.70	1.026
Home Economics	47	3.39	6,573.49	6,376.29	8,892.70	0.717
Health Occupations	342	24.66	9,747.62	9,455.19	8,892.70	1.063
Technical	98	7.07	13,719.86	13,308.26	8,892.70	1.497
Trade & Industrial	396	28.55	11,466.47	11,122.48	8,892.70	1.251
TOTALS	1,387	100%	10,307.58	9,998.35	8,892.70	1.124

Table 17 - B

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings
All Workers, *Region 2*

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	94	3.98	6,807.78	6,603.55	9,144,48	0.722
Office Education	685	29.01	9,651.26	9,361.72	9,144,48	1.024
Home Economics	138	5.84	7,156.93	6,942.22	9,144,48	0.759
Health Occupations	644	27.28	9,362.52	9,081.64	9,144,48	0.993
Technical	125	5.29	16,816.24	16,311.75	9,144,48	1.784
Trade & Industrial	675	28.59	11,806.27	11,452.08	9,144.48	1.252
TOTALS	2,361	100%	10,308.95	9,999.68	9,144,48	1.094

Table 17 - C

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings
All Workers, *Region 3*

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	181	5.23	7,323.84	7,104.12	10,433.47	0.681
Office Education	879	25.40	11,713.74	11,362.33	10,433.47	1.089
Home Economics	181	5.23	8,051.28	7,809.74	10,433.47	0.749
Health Occupations	1,029	29.74	9,720.22	9,428.61	10,433.47	0.904
Technical	263	7.60	17,711.68	17,180.33	10,433.47	1.647
Trade & Industrial	927	26.79	16,608.96	16,110.69	10,433.47	1.544
TOTALS	3,460	100%	12,467.07	12,093.06	10,433.47	1.159

Table 17 - D

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings
All Workers, *Region 4*

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	127	4.60	8,027.10	7,786.29	11,266.89	0.691
Office Education	791	28.67	13,646.38	13,236.99	11,266.89	1.175
Home Economics	171	6.20	8,582.91	8,325.42	11,266.89	0.739
Health Occupations	746	27.04	10,810.07	10,485.77	11,266.89	0.931
Technical	249	9.03	16,500.14	16,005.14	11,266.89	1.421
Trade & Industrial	675	24.47	15,289.37	14,830.69	11,266.89	1.316
TOTALS	2,759	100%	12,966.51	12,577.51	11,266.89	1.116

Table 17 - E

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings
All Workers, *Region 5*

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	48	2.24	10,555.92	10,239.24	12,347.29	0.829
Office Education	420	19.57	13,601.49	13,193.45	12,347.29	1.069
Home Economics	139	6.48	8,025.37	7,784.61	12,347.29	0.630
Health Occupations	472	21.99	12,889.97	12,503.27	12,347.29	1.013
Technical	194	9.04	19,262.50	18,684.63	12,347.29	1.513
Trade & Industrial	873	40.68	15,554.51	15,087.87	12,347.29	1.222
TOTALS	2,146	100%	14,323.35	13,893.65	12,347.29	1.125

Table 18

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Age (Age in 1985) Compared to Adjusted National Earnings, All Workers

Age	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
20 - 24	6,396	49.47	10,957.45	10,628.73	7,330.11	1.450
25 - 29	2,679	20.72	13,717.74	13,306.20	12,835.58	1.037
30 - 34	1,464	11.32	14,339.77	13,909.58	14,291.01	0.973
35 - 44	1,359	10.51	13,583.20	13,175.70	16,161.91	0.815
45 - 54	467	3.61	12,115.02	11,751.57	17,142.76	0.686
55 - 64	101	0.78	8,533.71	8,277.70	16,104.64	0.514
Over 65	14	0.11	8,851.93	8,586.37	8,610.32	0.997
Unknown	450	3.48	9,095.16	8,822.31	---	---
Totals	12,930	100%	12,144.09	11,779.76	10,776.52	1.093

Table 19 - A

Mean 1985 Income of 1982-83 Graduates Distributed By Program
Year-Round, Full-Time Workers

Program	N	%	Mean Income
Agribusiness	266	2.81	14,447.48
Office Education	2,589	27.37	14,327.42
Home Economics	395	4.18	11,460.38
Health Occupations	2,380	25.16	13,365.32
Technical	863	9.12	19,451.80
Trade & Industrial	2,967	31.36	17,664.90
TOTALS	9,460	100%	15,483.27

Table 19 - B

Adjusted Mean 1985 Earnings of 1982-83 Graduates Distributed By Program
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Program	Graduates Adjusted Mean EArnings	National Adjusted Mean Earnings	Ratio Graduates To National
Agribusiness	14,014.06	14,794.67	0.947
Office Education	13,897.60	14,794.67	0.939
Home Economics	11,116.57	14,794.67	0.751
Health Occupations	12,964.36	14,794.67	0.876
Technical	18,868.25	14,794.67	1.275
Trade & Industrial	17,134.95	14,794.67	1.158
TOTALS	15,018.77	14,794.67	1.015

Table 20 - A

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender Compared to Adjusted National Earnings Year-Round, Full-Time Workers

MALES

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	188	4.00	14,354.58	13,923.94	17,166.86	0.811
Office Education	764	16.22	17,344.21	16,823.88	17,166.86	0.980
Home Economics	119	2.53	13,222.88	12,826.19	17,166.86	0.747
Health Occupations	203	4.31	14,826.38	14,381.59	17,166.86	0.838
Technical	781	16.58	19,581.18	18,993.74	17,166.86	1.106
Trade & Industrial	2,655	56.37	18,126.72	17,582.92	17,166.86	1.024
TOTALS	4,710	100%	17,824.26	17,289.53	17,166.86	1.007

Table 20 - B

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Gender Compared to Adjusted National Earnings Year-Round, Full-Time Workers

FEMALES

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	78	1.64	14,671.38	14,231.24	12,442.31	1.144
Office Education	1,825	38.42	13,063.95	12,672.03	12,442.31	1.019
Home Economics	276	5.81	10,700.47	10,379.46	12,442.31	0.836
Health Occupations	2,177	45.83	13,229.08	12,832.21	12,442.31	1.033
Technical	82	1.73	18,219.60	17,673.01	12,442.31	1.423
Trade & Industrial	312	6.57	13,735.03	13,322.98	12,442.31	1.073
TOTALS	4,750	100%	13,161.99	12,767.13	12,442.31	1.026

As was the case with all workers in 1985, year-round, full-time working graduates tend to display higher earnings as the length of programs they attended increased. Tables 21-A and 21-B show ratios ranging from 0.86 for programs of less than one year, 0.88 for programs of one year in length and 1.07 for programs of a two year length. Again, graduates of trade and industry programs lasting less than a year are somewhat of an enigma, averaging over $18,000, second highest of any program of any length. Without knowing any specific information about these graduates work history, one can only speculate that these trade and industry graduates might be employed before enrolling and are taking a program for upgrading their skills.

Tables 22-A and 22-B again reveal the insignificant differences associated in earnings of graduates based upon whether they received or did not receive student financial aid assistance while attending a VTAE institution. Geographic residency again displayed no real differential among graduates relative to comparisons to the adjusted national earnings, for year-round, full-time workers. The range for year-round, full-time graduates was between 1.00 and 1.13 as shown in Tables 23-A through 23-E.

Age comparisons for 1982-83 graduates working year-round, full-time in 1985 followed the general premise established by all workers in 1985, that is; the younger the VTAE graduate, the more likely that graduate's income and adjusted earnings would exceed his/her age peers in adjusted national earnings, as displayed in Table 24.

Table 21 - A

Mean 1985 Income of 1982-83 Graduates Distributed By Program and Length of Instruction Year-Round, Full-Time Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	N	%	Mean Income	N	%	Mean Income	N	%	Mean Income
Agribusiness	42	4.06	16,230.69	55	1.79	13,195.34	164	3.31	13,090.41
Office Education	16	1.55	9,481.69	525	17.05	11,500.98	2,042	41.24	15,074.24
Home Economics	34	3.29	12,411.91	199	6.46	10,088.19	147	2.97	12,637.77
Health Occupations	695	67.15	11,020.52	849	27.57	11,985.49	806	16.28	16,814.75
Technical	---	---	---	---	---	---	863	17.43	19,451.80
Trade & Industrial	248	23.96	18,881.99	1,451	47.13	15,311.78	929	18.76	16,739.20
TOTALS	1,035	100%	13,137.58	3,079	100%	13,399.24	4,951	100%	16,294.99

Table 21 - B

Adjusted Mean 1985 Earnings of 1982-83 Graduates Distributed by Program and Length of Instruction Compared to Adjusted National Earnings, Year-Round, Full-Time Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	15,743.77	14,794.67	1.064	12,799.48	14,794.67	0.865	12,697.70	14,794.67	0.858
Office Education	9,197.24	14,794.67	0.622	11,155.95	14,794.67	0.754	14,622.01	14,794.67	0.988
Home Economics	12,039.55	14,794.67	0.814	9,785.54	14,794.67	0.661	12,258.64	14,794.67	0.829
Health Occupations	10,689.90	14,794.67	0.723	11,625.93	14,794.67	0.786	16,310.31	14,794.67	1.102
Technical	---	---	---	---	---	---	18,868.25	---	1.275
Trade & Industrial	18,315.53	14,794.67	1.238	14,852.43	14,794.67	1.004	16,237.02	14,794.67	1.098
TOTALS	12,743.45	14,794.67	0.861	12,997.26	14,794.67	0.879	15,806.14	14,794.67	1.068

Table 22 - A

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement Compared to Adjusted National Earnings Year-Round, Full-Time Workers, Economic Disadvantagement

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	50	2.46	12,223.98	11,857.26	14,794.67	0.802
Office Education	567	27.90	14,025.56	13,604.79	14,794.67	0.920
Home Economics	98	4.82	11,911.75	11,554.40	14,794.67	0.781
Health Occupations	458	22.54	13,700.12	13,289.12	14,794.67	0.898
Technical	197	9.69	16,621.50	16,122.86	14,794.67	1.090
Trade & Industrial	662	32.58	18,309.40	17,760.12	14,794.67	1.200
TOTALS	2,032	100%	15,453.24	14,989.64	14,794.67	1.013

Table 22 - B

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Disadvantagement Compared to Adjusted National Earnings Year-Round, Full-Time Workers, No Economic Disadvantagement

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	216	2.91	13,989.96	13,570.26	14,794.67	0.917
Office Education	2,022	27.22	14,411.58	13,979.26	14,794.67	0.945
Home Economics	297	4.00	11,311.47	10,972.13	14,794.67	0.742
Health Occupations	1,922	25.88	13,304.27	12,905.14	14,794.67	0.872
Technical	666	8.97	19,724.04	19,132.32	14,794.67	1.293
Trade & Industrial	2,305	31.03	17,480.67	16,956.25	14,794.67	1.146
TOTALS	7,428	100%	15,417.54	14,955.01	14,794.67	1.011

Table 23 - A

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Region 1

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	25	2.65	10,650.12	10,330.62	12,207.76	0.846
Office Education	321	33.97	13,989.43	13,569.75	12,207.76	1.112
Home Economics	26	2.75	9,951.62	9,653.07	12,207.76	0.791
Health Occupations	220	23.28	13,445.05	13,041.70	12,207.76	1.068
Technical	73	7.72	17,603.63	17,075.52	12,207.76	1.399
Trade & Industrial	280	29.63	14,977.84	14,528.50	12,207.76	1.190
TOTALS	945	100%	14,235.32	13,808.26	12,207.76	1.131

Table 23 - B

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Region 2

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	45	2.77	12,318.49	11,948.94	12,554.10	0.952
Office Education	480	29.59	12,343.38	11,973.08	12,554.10	0.954
Home Economics	63	3.88	11,270.43	10,932.32	12,554.10	0.872
Health Occupations	416	25.65	12,517.99	12,142.45	12,554.10	0.968
Technical	106	6.54	19,468.85	18,884.78	12,554.10	1.504
Trade & Industrial	512	31.57	14,523.80	14,088.09	12,554.10	1.122
TOTALS	1,622	100%	13,499.73	13,094.74	12,554.10	1.043

Table 23 - C

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Region 3

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	85	3.35	13,875.17	13,458.91	14,323.71	0.940
Office Education	665	26.17	14,412.68	13,980.30	14,323.71	0.976
Home Economics	98	3.86	11,588.83	11,241.16	14,323.71	0.785
Health Occupations	694	27.31	12,648.63	12,269.17	14,323.71	0.857
Technical	237	9.33	19,518.89	18,933.32	14,323.71	1.322
Trade & Industrial	762	29.99	19,492.40	18,907.63	14,323.71	1.320
TOTALS	2,541	100%	15,803.57	15,329.46	14,323.71	1.070

Table 23 - D

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Region 3

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	66	3.13	13,756.38	13,343.69	15,467.89	0.863
Office Education	640	30.37	16,118.38	15,634.83	15,467.89	1.011
Home Economics	102	4.84	11,995.04	11,635.19	15,467.89	0.752
Health Occupations	539	25.58	13,629.01	13,220.14	15,467.89	0.855
Technical	217	10.30	18,531.41	17,975.47	15,467.89	1.162
Trade & Industrial	546	25.91	18,096.25	17,553.36	15,467.89	1.135
TOTALS	2,107	100%	15,991.97	15,512.21	15,467.89	1.003

Table 23 - E

Mean 1985 Earnings of 1982-83 Graduates, Distributed by Program and Region Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Region 4

Program	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	34	2.02	13,446.97	13,043.56	16,951.12	0.769
Office Education	342	20.35	16,050.23	15,568.72	16,951.12	0.918
Home Economics	84	5.00	11,440.44	11,097.23	16,951.12	0.655
Health Occupations	368	21.89	15,547.88	15,081.44	16,951.12	0.890
Technical	172	10.23	21,307.89	20,668.65	16,951.12	1.219
Trade & Industrial	681	40.51	19,121.39	18,547.75	16,951.12	1.094
TOTALS	1,681	100%	17,439.39	16,916.21	16,951.12	0.998

Table 24

Mean 1985 Earnings of 1982-83 Graduates Distributed by Program and Age (Age in 1985) Compared to Adjusted National Earnings Year-Round, Full-Time Workers

Age	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
20 - 24	4,729	50.01	13,529.20	13,123.32	11,898.94	1.103
25 - 29	2,000	21.17	17.353.57	16,832.96	16,381.46	1.028
30 - 34	1,089	11.53	18,382.35	17,830.88	17,965.40	0.993
35 - 44	965	10.21	18,044.01	17,502.69	19,161.94	0.913
45 - 54	309	3.27	16,930.04	16,422.14	20,513.96	0.801
55 - 64	49	0.52	15,879.23	15,402.85	19,775.26	0.779
Over 65	14	0.15	8,851.93	8,586.37	17,926.83	0.479
Unknown	292	3.09	12,677.57	12,297.24	---	---
TOTALS	9,447	100%	15,449.65	14,986.16	14,794.67	1.013

CHAPTER IV

1988 EARNINGS OF 1982-83 GRADUATES COMPARISON GROUPS

During the conduct of this research, the researchers became aware of the development and initiation of a new data base within the State of Wisconsin that also holds great promise for assisting in the follow-up of vocational education graduates. This is the Wage Reporting System administered by the Department of Industry, Labor and Human Relations (DILHR). Beginning January 1, 1988, almost all employers in the State of Wisconsin must report to DILHR, on a quarterly basis, wages paid to their employees. It was decided that this data base might be utilized to investigate first quarter, 1988 earnings of the 1982-83 VTAE graduates, some six years after graduation. Participation by DILHR in this quest was graciously rendered and the tape of 1982-83 VTAE graduates was run against the first quarter, 1988 Wage Reporting System. Of the 15,959, 1982-83 graduates, 11,220 persons (over 70%) were identified with first quarter, 1988 earnings. Earnings information as well as zip codes of employers for these 1982-83 graduates were then analyzed in a manner similar to that for the 1985 income tax analysis.

Certain modifications of the data were made in this analysis however. First of all, since the Wage Reporting System includes only wages and earnings, it was not necessary to deflate the income figures as was the case in the 1985 data on income from the Department of Revenue. Secondly, since Census data on earnings is not yet available for 1988, the comparison group standard to be applied had to be interpolated from the 1985 comparison group. To this end, an upward adjustment of 7% (representing a cost of living inflator) was applied to the 1985 comparison group earnings to formulate a 1988 comparison group earnings profile. Lastly, since earnings information was available only for the first quarter of 1988 at the time the analysis was performed, the first quarter earnings of the graduates were multiplied by a factor of four to determine an estimated 1988 annual earnings.

Again, the 1982-83 graduates were divided into total or all workers and year-round, full-time workers for purposes of analysis with the comparison groups. Of the 11,220 1982-83 graduates identified in the Wage Reporting System in the first quarter of 1988, 7,553 or a little over 67% were identified as year-round, full-time workers (based on earning minimum wage for the quarter). These 15,959 1982-83 VTAE graduates were also run against the Unemployment Compensation files for the first quarter of 1988 and not one graduate received unemployment compensation during the first quarter of 1988. What follows are tables similar to those prepared for the graduates for 1985 data.

Tables 25-A displays 1988 first quarter earnings of 1982-83 graduates and their projected annual 1988 earnings for all workers, distributed by program area. Table 25-B then compares these projected earnings with adjusted national earnings for their peers. Overall, 1982-83 graduates outperformed economically their counterparts by 17%, with technical and trade and industry graduates once again leading the way, out performing their counterparts by 75% and 40% respectively.

TABLE 25 - A

1988 First Quarter Earnings of 1982-83 Graduates
Distributed By Program
All Workers

Program	N	%	First Quarter Mean	Projected Annual
Agribusiness	319	2.84	2,781	11,124
Office Education	2,992	26.67	3,266	13,064
Home Economics	611	5.45	1,760	7,040
Health	3,055	27.23	2,604	10,416
Technical	872	7.77	5,035	20,140
Trade & Industrial	3,371	30.04	4,047	16,188
TOTALS	11,220	100%	3,362	13,448

Table 25 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program
Compared To Adjusted National Earnings
All Workers

Program	Projected Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	11,124	11,531	0.965
Office Education	13,064	11,531	1.133
Home Economics	7,040	11,531	0.611
Health Occupations	10,416	11,531	0.903
Technical	20,140	11,531	1.747
Trade & Industrial	16,188	11,531	1.404
TOTALS	13,448	11,531	1.166

Projected 1988 earnings for 1982-83 graduates, all workers, are displayed by gender in Tables 26-A and 26-B. As was the case in 1985, male graduates outperformed female graduates in actual dollar amounts. However, when female graduates are compared to female national adjusted earnings versus male graduates compared to male adjusted national earnings, female graduates showed an advantage of about four percentage points.

Ranges by length of instruction reveal a similar distribution as found in the 1985 data. For all workers, 1982-83 graduates by program area went from 0.81 in less than one year programs to 0.99 in programs of one year in length to 1.34 for two year programs. These data are summarized in Tables 27-A and 27-B.

Tables 28-A and 28-B present the distribution of projected 1988 earnings of 1982-83 graduates by economic disadvantagement for all workers. After approximately five years in the workforce, there is still no significant difference in earnings between those students who received some sort of financial aid while attending school compared to those who didn't.

Tables 29-A to 29-E exhibit little difference among regions in projected 1988 earnings as did the 1985 tax data for 1982-83 graduates, all workers, when compared to adjusted national earnings.

Differentials among age groups follow the pattern seen in the 1985 income data. The younger the graduate in the workforce, the more likely he/she will out perform the peer comparison group. Approximately one half on the 1982-83 graduates found in the Wage Reporting system in 1988 were in the 20-24 age group in 1985 and outperformed their peers by 56%. Table 30 presents this data for projected 1988 earnings for all the age groupings, all workers.

Tables 31-A and 31-B present the projected 1988 earnings for 1982-83 graduates by program area, for year-round, full-time workers. Compared to adjusted national earnings, 1982-83 VTAE graduates, some five years after graduation are earning over 20% more than their peers. Again, technical and trade and industry graduates lead the way.

Tables 32-A and 32-B display the projected 1988 earnings for year-round, full-time workers, by gender. In these tables, males compared to adjusted national earnings outperform females, similarly compared, by 23 to 19%.

For the only time in the analysis of data in this study, do all three levels of length of instruction meet a ratio above 1.00 as shown in Tables 33-A and 33-B. It may be possible that training of a shorter term nature produces increasing economic benefits in the longer term. Alternatively, these graduates may have benefited from additional training which is unknown in the context of this study. In any event, 1982-83 VTAE graduates, year-round, full-time workers in 1988, had the following ratios compared to adjusted national earnings: 1.00 for programs of less than one year, 1.06 for one year programs and 1.30 for two year programs.

Table 26 - A

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Gender
Compared to Adjusted National Earnings
All Workers

Males

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	219	4.15	2,876	11,504	14,665	0.784
Office Education	855	16.20	4,053	16,212	14,665	1.105
Home Economics	169	3.20	2,195	8,780	14,665	0.599
Health Occupations	274	5.19	2,585	10,340	14,665	0.705
Technical	782	14.82	5,196	20,784	14,665	1.417
Trade & Industrial	2,978	56.43	4,222	16,888	14,665	1.152
TOTALS	5,277	100%	4,133	16,532	14,665	1.127

Table 26 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Gender
Compared to Adjusted National Earnings
All Workers

Females

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	100	1.68	2,572	10,288	9,146	1.125
Office Education	2,137	35.96	2,951	11,804	9,146	1.291
Home Economics	442	7.44	1,594	6,376	9,146	0.697
Health Occupations	2,781	46.79	2,606	10,424	9,146	1.140
Technical	90	1.51	3,632	14,528	9,146	1.588
Trade & Industrial	393	6.61	2,718	10,872	9,146	1.189
TOTALS	5,943	100%	2,677	10,708	9,146	1.171

Table 27 - A

1988 First Quarter Earnings of 1982-83 Graduates
Distributed By Program and Length of Instruction
All Workers

Program	Under 1 Year				1 Year Program				2 Year Program			
	N	%	1st Quarter Mean	Projected Annual	1	2	3	4	1	2	3	4
Agribusiness	60	3.68	3,035	12,140	66	1.72	2,207	8,828	185	3.49	2,896	11,584
Office Education	11	0.67	3,075	12,300	711	18.53	2,422	9,688	2,247	42.41	3,556	14,224
Home Economics	57	3.49	1,838	7,352	348	9.07	1,496	5,984	186	3.51	2,118	8,472
Health Occupations	1,209	74.08	1,920	7,680	998	26.00	2,483	9,932	795	15.01	3,792	15,168
Technical	---	---	---	---	---	---	---	---	872	16.46	5,035	20,140
Trade & Industrial	295	18.08	3,894	15,576	1,715	44.68	3,544	14,176	1,013	19.12	4,058	16,232
TOTALS	1,632	100%	2,323	9,292	3,838	100%	2,852	11,408	5,298	100%	3,857	15,428

Table 27 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Length of Instruction
Compared to Adjusted National Earnings, All Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	12,140	11,531	1.053	8,828	11,531	0.766	11,584	11,531	1.005
Office Education	12,300	11,531	1.067	9,688	11,531	0.840	14,224	11,531	1.234
Home Economics	7,352	11,531	0.638	5,984	11,531	0.519	8,472	11,531	0.735
Health Occupations	7,680	11,531	0.666	9,932	11,531	0.861	15,168	11,531	1.315
Technical	---	---	---	---	---	---	20,140	11,531	1.747
Trade & Industrial	15,576	11,531	1.351	14,176	11,531	1.229	16,232	11,531	1.408
TOTALS	9,292	11,531	0.806	11,408	11,531	0.989	15,428	11,531	1.338

Table 28 - A

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Economics Disadvantagement
Compared to Adjusted National Earnings
All Workers, Economic Disadvantagement**

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	62	2.52	2,783	11,132	11,531	0.965
Office Education	673	27.39	3,174	12,696	11,531	1.101
Home Economics	146	5.94	1,805	7,220	11,531	0.626
Health Occupations	598	24.34	2,758	9,832	11,531	0.853
Technical	198	8.06	5,141	20,564	11,531	1.783
Trade & Industrial	780	31.75	3,924	15,696	11,531	1.361
TOTALS	2,457	100%	3,378	13,512	11,531	1.172

Table 28 - B

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Economic Disadvantagement
Compared to Adjusted National Earnings
All Workers, No Economic Disadvantagement**

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	257	2.93	2,780	11,120	11,531	0.964
Office Education	2,319	26.46	3,293	13,172	11,531	1.142
Home Economics	465	5.31	1,746	6,984	11,531	0.606
Health Occupations	2,457	28.04	2,567	10,268	11,531	0.890
Technical	674	7.69	5,004	20,016	11,531	1.736
Trade & Industrial	2,591	29.57	4,084	16,336	11,531	1.417
TOTALS	8,763	100%	3,357	13,428	11,531	1.165

Table 29 - A

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings, All Workers**

Region 1

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	25	1.94	3,033	12,132	9,515	1.275
Office Education	457	35.43	2,739	10,956	9,515	1.151
Home Economics	36	2.79	1,163	4,652	9,515	0.489
Health Occupations	284	22.02	2,274	9,096	9,515	0.956
Technical	109	8.45	4,382	17,528	9,515	1.842
Trade & Industrial	379	29.38	3,056	12,224	9,515	1.285
TOTALS	1,290	100%	2,830	11,320	9,515	1.190

Table 29 - B

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings, All Workers**

Region 2

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	65	2.89	2,449	9,796	9,785	1.001
Office Education	650	28.89	2,783	11,132	9,785	1.138
Home Economics	129	5.73	1,613	6,452	9,785	0.659
Health Occupations	617	27.42	2,381	9,524	9,785	0.973
Technical	129	5.73	5,301	21,204	9,785	2.165
Trade & Industrial	660	29.33	3,335	13,340	9,785	1.363
TOTALS	2,250	100%	2,902	11,608	9,785	1.186

Table 29 - C

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings, All Workers**

Region 3

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	98	2.94	3,206	12,824	11,164	1.149
Office Education	835	25.09	3,410	13,640	11,164	1.222
Home Economics	167	5.02	1,806	7,224	11,164	0.647
Health Occupations	1,044	31.37	2,449	9,796	11,164	0.877
Technical	249	7.48	5,414	21,656	11,164	1.940
Trade & Industrial	935	28.09	4,721	18,884	11,164	1.692
TOTALS	3,328	100%	3,540	14,160	11,164	1.268

Table 29 - D

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings, All Workers**

Region 4

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	94	3.99	2,578	10,312	12,056	0.855
Office Education	680	28.90	3,530	14,120	12,056	1.171
Home Economics	137	5.82	2,058	8,232	12,056	0.683
Health Occupations	669	28.43	2,908	11,632	12,056	0.965
Technical	212	9.01	4,567	18,268	12,056	1.515
Trade & Industrial	561	23.84	3,804	15,216	12,056	1.262
TOTALS	2,353	100%	3,388	13,552	12,056	1.124

Table 29 - E

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings, All Workers

Region 5

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	37	1.85	2,583	10,332	13,212	0.782
Office Education	370	18.51	3,953	15,812	13,212	1.197
Home Economics	142	7.10	1,705	6,820	13,212	0.516
Health Occupations	441	22.06	3,035	12,140	13,212	0.919
Technical	173	8.65	5,276	21,104	13,212	1.597
Trade & Industrial	836	41.82	4,467	17,868	13,212	1.352
TOTALS	1,999	100%	3,895	15,580	13,212	1.179

Table 30

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Age (Age in 1985)
Compared to Adjusted National Earnings
All Workers

Age	N	%	Mean Income	Graduates Adjusted Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
20 - 24	5,559	49.55	3,059	12,236	7,843	1.560
25 - 29	2,330	20.77	3,752	15,008	13,734	1.093
30 - 34	1,272	11.34	4,018	16,072	15,291	1.051
35 - 44	1,178	10.50	3,699	14,796	17,293	0.856
45 - 54	368	3.28	3,219	12,876	18,343	0.702
55 - 64	70	0.62	2,439	9,756	17,232	0.566
Over 65	7	0.06	4,313	17,252	9,213	1.873
Unknown	436	3.89	2,568	10,272	---	---
TOTALS	11,220	100%	3,362	13,448	11,531	1.166

TABLE 31 - A

1988 First Quarter Earnings of 1982-83 Graduates
Distributed By Program
Year-Round, Full-Time Workers

Program	N	%	First Quarter Mean	Projected Annual
Agribusiness	185	2.45	4,554	18,216
Office Education	2,122	28.09	4,427	17,708
Home Economics	273	3.61	3,425	13,700
Health	1,884	24.94	3,913	15,652
Technical	698	9.24	6,230	24,920
Trade & Industrial	2,391	31.66	5,561	22,244
TOTALS	7,553	100%	4,791	19,164

Table 31 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program
Compared To Adjusted National Earnings
Year-Round, Full-Time Workers

Program	Projected Mean Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	18,216	15,830	1.151
Office Education	17,708	15,830	1.119
Home Economics	13,700	15,830	0.865
Health Occupations	15,652	15,830	0.989
Technical	24,920	15,830	1.574
Trade & Industrial	22,244	15,830	1.405
TOTALS	19,164	15,830	1.211

Table 32 - A

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Gender
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Males

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	125	3.30	4,830	19,320	18,369	1.052
Office Education	629	16.60	5,380	21,520	18,369	1.172
Home Economics	85	2.24	3,958	15,832	18,369	0.862
Health Occupations	154	4.06	4,256	17,024	18,369	0.927
Technical	637	16.81	6,324	25,296	18,369	1.377
Trade & Industrial	2,160	56.99	5,698	22,792	18,369	1.241
TOTALS	3,790	100%	5,624	22,496	18,369	1.225

Table 32 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Gender
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Females

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	60	1.59	3,978	15,912	13,313	1.195
Office Education	1,493	39.68	4,026	16,104	13,313	1.210
Home Economics	188	5.00	3,184	12,736	13,313	0.957
Health Occupations	1,730	45.97	3,882	15,528	13,313	1.166
Technical	61	1.62	5,245	20,980	13,313	1.576
Trade & Industrial	231	6.14	4,276	17,104	13,313	1.285
TOTALS	3,763	100%	3,952	15,808	13,313	1.187

Table 33 - A

1988 First Quarter Earnings of 1982-83 Graduates
Distributed By Program and Length of Instruction
Year-Round, Full-Time Workers

Program	Under 1 Year				1 Year Program				2 Year Program			
	N	%	1st Quarter Mean	Projected Annual	1	2	3	4	1	2	3	4
Agribusiness	30	3.45	5,566	22,264	34	1.38	4,033	16,132	116	2.98	4,448	17,792
Office Education	7	0.81	4,573	18,292	457	18.52	3,486	13,944	1,653	42.50	4,691	18,764
Home Economics	24	2.76	3,818	15,272	141	5.71	3,000	12,000	96	2.47	3,812	15,248
Health Occupations	614	70.66	3,267	13,068	644	26.09	3,587	14,348	595	15.30	4,915	19,660
Technical	---	---	---	---	---	---	---	---	698	17.95	6,230	24,920
Trade & Industrial	194	22.32	5,741	22,964	1,192	48.30	4,932	19,728	731	18.80	5,503	22,012
TOTALS	869	100%	3,964	15,856	2,468	100%	4,191	16,764	3,889	100%	5,125	20,500

Table 33 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Length of Instruction
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Program	Under 1 Year			1 Year Program			2 Year Program		
	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National	1988 Projected Annual	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	22,264	15,830	1.406	16,132	15,830	1.019	17,792	15,830	1.124
Office Education	18,292	15,830	1.156	13,944	15,830	0.881	18,764	15,830	1.185
Home Economics	15,272	15,830	0.965	12,000	15,830	0.758	15,248	15,830	0.963
Health Occupations	13,068	15,830	0.826	14,348	15,830	0.906	19,660	15,830	1.242
Technical	---	---	---	---	---	---	24,920	15,830	1.574
Trade & Industrial	22,964	15,830	1.451	19,728	15,830	1.246	22,012	15,830	1.391
TOTALS	15,856	15,830	1.002	16,764	15,830	1.059	20,500	15,830	1.295

Once again, data for projected 1988 earnings of 1982-83 VTAE graduates working year-round, full-time reveal no differences in earnings between those receiving student financial aid while attending school versus those who didn't as evidenced in Table 34-A and 34-B.

Little, if any, regional variation is again found for projected 1988 earnings of the 1982-83 graduates, working year-round, full-time. Tables 35-A through 35-E demonstrate the variation to be between 1.16 and 1.29.

As has been demonstrated throughout this report, age plays a major role in determining earnings enhancement of 1982-83 graduates. Table 36 displays this general trend for 1988 earnings.

Table 34 - A

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Economic Disadvantagement
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers, Economic Disadvantagement**

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	40	2.40	4,055	16,220	15,830	1.025
Office Education	476	28.55	4,299	17,196	15,830	1.086
Home Economics	68	4.08	3,487	13,948	15,830	0.881
Health Occupations	384	23.04	3,998	15,992	15,830	1.010
Technical	169	10.14	5,962	23,848	15,830	1.507
Trade & Industrial	530	31.79	5,614	22,456	15,830	1.419
TOTALS	1,667	100%	4,777	19,108	15,830	1.207

Table 34 - B

**Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Economic Disadvantagement
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers, No Economic Disadvantagement**

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	145	2.46	4,691	18,764	15,830	1.185
Office Education	1,646	27.96	4,464	17,856	15,830	1.128
Home Economics	205	3.48	3,405	13,620	15,830	0.860
Health Occupations	1,500	25.48	3,891	15,564	15,830	0.983
Technical	529	8.99	6,315	25,260	15,830	1.596
Trade & Industrial	1,861	31.62	5,546	22,184	15,830	1.401
TOTALS	5,886	100%	4,795	19,180	15,830	1.212

Table 35 - A

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 1

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	15	1.80	4,901	19,604	13,062	1.501
Office Education	305	36.53	3,872	15,488	13,062	1.186
Home Economics	14	1.68	2,416	9,664	13,062	0.740
Health Occupations	160	19.16	3,727	14,908	13,062	1.141
Technical	85	10.18	5,582	22,328	13,062	1.709
Trade & Industrial	256	30.66	4,368	17,472	13,062	1.338
TOTALS	835	100%	4,164	16,656	13,062	1.275

Table 35 - B

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 2

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	34	2.35	4,416	17,664	13,433	1.315
Office Education	438	30.31	3,899	15,596	13,433	1.161
Home Economics	51	3.53	3,330	13,320	13,433	0.992
Health Occupations	374	25.88	3,590	14,360	13,433	1.069
Technical	106	7.34	6,368	25,472	13,433	1.896
Trade & Industrial	442	30.59	4,797	19,188	13,433	1.428
TOTALS	1,445	100%	4,267	17,068	13,433	1.271

Table 35 - C

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 3

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	62	2.70	4,860	19,440	15,326	1.268
Office Education	608	26.48	4,514	18,056	15,326	1.178
Home Economics	75	3.27	3,545	14,180	15,326	0.925
Health Occupations	632	27.53	3,678	14,712	15,326	0.960
Technical	211	9.19	6,347	25,388	15,326	1.657
Trade & Industrial	708	30.84	6,126	24,504	15,326	1.599
TOTALS	2,296	100%	4,927	19,708	15,326	1.286

Table 35 - D

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 4

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	55	3.45	4,105	16,420	16,551	0.992
Office Education	484	30.40	4,819	19,276	16,551	1.165
Home Economics	70	4.40	3,595	14,380	16,551	0.869
Health Occupations	435	27.32	4,208	16,832	16,551	1.017
Technical	164	10.30	5,817	23,268	16,551	1.406
Trade & Industrial	384	24.12	5,400	21,600	16,551	1.305
TOTALS	1,592	100%	4,816	19,264	16,551	1.164

Table 35 - E

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Region
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 5

Program	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
Agribusiness	19	1.37	4,830	19,320	18,138	1.065
Office Education	287	20.72	4,978	19,912	18,138	1.098
Home Economics	63	4.55	3,396	13,584	18,138	0.749
Health Occupations	283	20.43	4,514	18,056	18,138	0.995
Technical	132	9.53	6,862	27,448	18,138	1.513
Trade & Industrial	601	43.39	6,067	24,268	18,138	1.338
TOTALS	1,385	100%	5,462	21,848	18,138	1.205

Table 36

Projected Mean 1988 Earnings of 1982-83 Graduates
Distributed by Program and Age (Age in 1985)
Compared to Adjusted National Earnings
Year-Round, Full-Time Workers

Region 5

Age	N	%	1st Quarter Mean Earnings	Projected Annual Earnings	National Adjusted Mean Earnings	Ratio Graduates to National
20-24	3,716	49.20	4,375	17,500	12,732	1.374
25 -29	1,606	21.26	5,258	21,032	17,528	1.200
30 - 34	891	11.80	5.,568	22,272	19,223	1.159
35 - 44	788	10.43	5,311	21,244	20,503	1.036
45 - 54	250	3.31	4,501	18,004	21,950	0.820
55 - 64	37	0.49	4,257	17,028	21,160	0.805
Over 65	5	0.07	5,481	21,924	19,182	1.143
Unknown	260	3.44	3,962	15,848	---	---
TOTALS	7,553	100%	4,791	19,164	15,830	1.211

Chapter V

Mobility of Vocational Education Graduates

Much discussion has been raised, at least in the State of Wisconsin, concerning the mobility of graduates of postsecondary educational institutions. As has been already documented in this study, over 81% of the 1982-83 VTAE graduates filed Wisconsin State income tax returns in 1985, some two and a half to three years after graduation. In addition, it has also been demonstrated that over 70% of these same graduates received some sort of earnings in the first quarter of 1988, some five and a half to six years after graduation. The researchers also attempted to identify any patterns of movement within the State. Of the 12,982 1982-83 VTAE graduates filing tax returns in 1985, an analysis was made utilizing the zip code on their tax return to represent residence in 1985. This was compared to the zip codes for the region in which they were trained. Table 37 presents this distribution by region and program area. Approximately 6.7% of graduates were 1985 Wisconsin tax filers living out of state, perhaps assigned to the military or perhaps representing recent out migrants who were filing a return as a part-time resident. While there appears to be a gradual shifting of graduates from Region I through the other regions into Region V, that is, from the northwest portion of the state to the southeast, relative stability of residence is evident.

In reviewing Table 37 for example, one can ascertain that 80.6% of these 1982-83 graduates who filed taxes in 1985 and who graduated from an agriculture program in Region 1, still reside in Region 1 in 1985. Percentages over 100% indicate that more graduates moved into the region than left the region.

Table 37

1985 Net Retention Rates of 1982-83 Graduates Distributed By Region and Program

Program	Region 1	Region 2	Region 3	Region 4	Region 5	Total Wis	N.B.
Agribus	80.6%	91.3%	97.3%	87.6%	109.1%	93.3%	34
Office Ed	84.8%	91.2%	94.0%	97.7%	104.7%	94.0%	208
Home Ec	95.9%	84.7%	88.7%	108.2%	90.9%	93.0%	51
Health	98.9%	89.0%	90.5%	94.6%	98.7%	93.1%	241
Tech	70.5%	87.4%	98.9%	93.6%	101.0%	92.4%	77
T & I	90.0%	90.4%	89.2%	100.0%	96.7%	93.2%	258
TOTALS	88.3%	89.7%	91.9%	97.1%	98.9%	93.3%	869

N.B. - Number of 1982-83 Graduates living outside the State who still filed Wisconsin State income taxes in 1985.

(Source: Wisconsin Department of Revenue)

CHAPTER VI

SUMMARY - OBSERVATIONS AND CONCLUSIONS

The purpose of this research was to determine how graduates of VTAE programs faired in the work force as compared with a national comparison group. The secondary purpose was to ascertain the feasibility and appropriateness of utilizing existing data bases to conduct follow-up research of vocational education graduates.

Graduates of vocational education programs in sixteen VTAE districts in the State of Wisconsin for the year 1982-83 were examined and categorized based upon known information. This information was explained in Chapter I. Chapter II of this study presented the 1985 income status of those graduates as reported to the Wisconsin Department of Revenue. Chapter III established a comparison group of people and compared these earnings to those of the the 1982-83 graduates. Chapter IV did the same based upon the 1982-83 graduates' earnings for the first quarter of 1988, as reported by employers to the Wisconsin Department of Industry, Labor and Human Relations' Wage Reporting System. Chapter V discussed the in-state mobility of the 1982-83 graduates. The following tables, 38-A through 39-B, are aggregate tables which summarize all the earnings and income data that were previously reported in Tables 13-A through 26.

Tables 38-A and 38-B present the ratios of earnings of the 1982-83 graduates in 1985 and projected in 1988 to standardized population estimates by a number of different variables and by two different groupings: all workers including part-time workers and year-round, full-time workers. Tables 39-A and 39-B present the same information only in actual dollar amount differences.

A number of observations and conclusions can be reached after reviewing the data and information contained in the report.

1. Overall, VTAE graduates out-performed economically comparison groupings based on the same gender and age breakdown for persons with a high school diploma. (9.3% in 1985 and 16.6% in 1988 for all workers, and 1.5% and 21.1% respectively for year-round, full-time workers).

2. The longer the VTAE graduate is in the workforce, the more that graduate out-performs economically his or her peers. (9.3% in 1985 and 16.6% in 1988 for all workers, and 1.5% in 1985 and 21.2% in 1988 for year-round, full-time workers).

3. The longer the term of training, the higher the earnings of the VTAE graduate. (For the 1988 year-round, full-time worker, 0.2% for less than one year programs, 5.9% for one year programs and 29.5% for associate degree and two year programs). The only clear exception to this rule was persons completing short term trade and industry programs who in many instances out-performed some two year program completers.

4. For the most part, female graduates out-performed their peers to a greater degree than did males, although actual dollar amount differences were greater for males in 1988.

5. Graduates of technical programs (two years in length only) and trade and industry programs earned more than graduates from all other program areas.

6. There was no discernable difference in earnings between graduates who received student financial aid while attending school versus those who did not. In other words, economic disadvantagement while attending school had little effect on earnings in the workplace.

7. For the vast majority of cases, the younger the VTAE graduate, the more likely it was that the graduate would out-perform economically his or her counterpart in the comparison groups.

8. While there were some differences in earning levels of completers geographically, earnings ratios of graduates to control groups in each region were very similar, thus displaying a uniform economic impact across the State.

9. Compared to national statistics for 1985, 1982-83 VTAE graduates tend to work in year-round, full-time jobs to a greater degree than their peers with high school diplomas. (76.8% for male graduates versus 67.2% for the general population of males; 69.4% for female graduates versus 50.5% for the general population of females).

10. VTAE graduates received unemployment compensation less often and to a lesser extent than the general population in the State of Wisconsin. (In 1985, about 14% of Wisconsin residents received UC payments of $100 or more, while only 6.3% of 1982-83 VTAE graduates received the same. In addition, while 4.4% of Wisconsin residents received payments of over $2,000 in 1985, 1.3% of the 1982-83 VTAE graduates did likewise. In the first quarter of 1988, no 1982-83 VTAE graduate received any form of unemployment compensation.)

11. The design of this research proved to be appropriate and highly feasible for carrying out follow-up research on vocational/technical students. In addition to a follow-up of recent completers, the methodology can be used for longitudinal studies. The potential exists to follow-up completers of training programs throughout their work careers.

Table 38 - A

Summary of Ratios of Earnings of 1982-83 VTAE Graduates in 1985 and Projected in 1988 to Standardized Population Estimates,Aall Workers and Year-Round Full-Time Workers, by Program, Gender, Length of Instruction, Disadvantagement, Region and Age.

		PROGRAM AREA						GENDER		LENGTH OF INSTRUCTION		
Year	OVERALL	AGRIBUS	OFFICE ED	HOME ECON	HEALTH OCC	TECHNICAL	TRADE & IND	MALE	FEMALE	< 1 YEAR	1 YEAR	2 YEAR
1985 All workers N=12,982	1.093	0.720	1.039	0.704	0.924	1.537	1.303	1.017	1.150	0.761	0.931	1.244
1985 Year-round, full-time workers N=9,460	1.015	0.947	0.939	0.751	0.876	1.275	1.158	1.007	1.026	0.861	0.879	1.068
1988 All workers N=11,220	1.166	0.965	1.133	0.611	0.903	1.747	1.404	1.127	1.171	0.808	0.989	1.338
1988 Year-round, full-time workers N=7,553	1.211	1.151	1.119	0.865	0.989	1.574	1.405	1.225	1.187	1.002	1.059	1.295

Table 38 - B

Summary of Ratios of Earnings of 1982-83 VTAE Graduates in 1985 and Projected in 1988 to Standardized Population Estimates,Aall Workers and Year-Round Full-Time Workers, by Program, Gender, Length of Instruction, Disadvantagement, Region and Age, continued.

	DISADVANTAGEMENT		REGIONS					AGES							
YEAR	ECONOMIC	NONE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	20 - 24	25 - 29	30 - 34	35 - 44	45 - 55	55 - 64	OVER 65	OVERALL
1985 All workers N=12,982	1.108	1.088	1.124	1.094	1.159	1.116	1.125	1.450	1.037	0.973	0.815	0.686	0.514	0.997	1.093
1985 Year-round, full-time workers N=9,460	1.013	1.011	1.131	1.043	1.070	1.003	0.998	1.103	1.028	0.993	0.913	0.801	0.779	0.479	1.015
1988 All workers N=11,220	1.172	1.165	1.190	1.186	1.268	1.124	1.179	1.560	1.093	1.051	0.856	0.702	0.566	1.873	1.166
1988 Year-round, full-time workers N=7,553	1.207	1.212	1.275	1.271	1.286	1.164	1.205	1.374	1.200	1.159	1.036	0.820	0.805	1.143	1.211

Table 39 - A

Summary of Dollar Differences of Earnings of 1982-83 VTAE Graduates in 1985 and Projected in 1988 to Standardized Population Estimates, All Workers and Year-Round Full-Time Workers, By Program, Gender, Length of Instruction, Disadvantagement, Region and Age

		PROGRAM AREA						GENDER		LENGTH OF INSTRUCTION		
Year	OVERALL	AGRI BUS	OFFICE ED	HOME ECON	HEALTH OCC	TECHNICAL	TRADE & IND	MALE	FEMALE	< 1 YEAR	1 YEAR	2 YEAR
1985 All workers N=12,982	+998	-4,731	+417	-3,194	-823	+5,782	+3,263	+235	+1,286	-2,575	-744	+2,633
1985 Year-round, full-time workers N=9,460	+224	-781	-897	-3,678	-1,830	+4,074	+2,340	+123	+325	-2,051	-1,797	+1,011
1988 All workers N=11,220	+1,917	-407	+1,533	-4,491	-1,115	+8,609	+4,657	+1,867	+1,562	-2,239	-123	+3,897
1988 Year-round, full-time workers N=7,553	+3,334	+2,386	+1,878	-2,130	-178	+9,090	+6,414	+4,127	+2,495	+26	+934	+4,670

Table 39 - B

Summary of Dollar Differences of Earnings of 1982-83 VTAE Graduates in 1985 and Projected in 1988 to Standardized Population Estimates, All Workers and Year-Round Full-Time Workers, By Program, Gender, Length of Instruction, Disadvantagement, Region and Age, Continued

	DISADVANTAGEMENT		REGIONS					AGES							
YEAR	ECONOMIC	NONE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	20 - 24	25 - 29	30 - 34	35 - 44	45 - 55	55 - 64	OVER 65	OVERALL
1985 All workers N=12,982	+1,164	+953	+1,106	+855	+1,660	+1,311	+1,546	+3,299	+471	-381	-2,986	-5,391	-7,827	-24	+998
1985 Year-round, full-time workers N=9,460	+195	+160	+1,600	+541	+1,006	+44	-35	+1,224	+450	-135	-1,659	-4,092	-4,372	-9,340	+224
1988 All workers N=11,220	+1,981	+1,897	+1,805	+1,823	+2,996	+1,496	+2,368	+4,393	+1,274	+781	-2,497	-5,467	-7,476	+8,039	+1,917
1988 Year-round, full-time workers N=7,553	+3,278	+3,350	+3,594	+3,635	+4,382	+2,713	+3,710	+4,768	+3,504	+3,049	+741	-3,946	-4,132	+2,742	+3,334

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